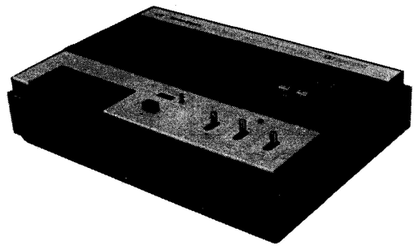
Teleton

SERVICE MANUAL
CD-100 STEREO CASSETTE DECK
with DOLBY



This manual is valid from serial No. 2001 onward.

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1 DISASSEMBLY (See exploded view)

Before voltage setting or repairing the tape recorder, disassemble the unit as follows;
Pull off the knobs from the level controls, then remove 6 pcs of Ⓐ screws at the bottom and 2 pcs of Ⓑ screws at the top.
Before removing the cover completely, remove the Dolby N.R. Indicator lamp from its holder.

2 ALIGNMENT

Prior to the following alignment azimuth adjustment of the recording/playback head should be performed as follows;
Prepare a standard tape for azimuth adjustment (with 10 kHz signal) and adjust the screw for azimuth adjustment for maximum output at playback function.

2-1 ALIGNMENT PROCEDURES OF MPX FILTER

(1) Removal of Dolby N.R. Amp. PCB
Take off the holder-volume & meter (No. 129) by removing 4 pcs of Ⓒ screw being fixed to the bottom cabinet as shown in the exploded view. Then remove 4 pcs of Ⓓ screws fixing the Dolby N.R. Amp. PCB as shown in the exploded view.
(2) Set the Dolby N.R. switch to the OFF position also connect MP 1 (See circuit diagram/Dolby N.R. Amp. PCB view) to ground in order to keep the gate of the FET (2SK30D) in off condition. Set the volume control to max.
(3) Disconnect lead wire from MP 2 (L IN, R IN) on Dolby N.R. Amp. PCB.
(4) Supply an external 400 Hz signal from an audio generator through a 3.3k Ohm resistor (to be prepared) to MP 2.
(5) The output signal is to be measured by VTVM across PIN 3 L CH out (PIN 5 R CH out) and PIN 2 (ground) of the DIN jack.
(6) Set the input signal level by adjusting the attenuator of generator so that the output signal reaches around 700 mV to 1 V.
(7) Change generator frequency to 19 kHz without changing the level or any control.
(8) Adjust 3 (Low pass filter) until the output is decreased by more than -30 dB.
(9) Change generator frequency to 38 kHz.
(10) Adjust 4 (Low pass filter) until the output is decreased by more than -25 dB.
(11) Check that the attenuation effect does not exceed 2 dB at 15 kHz.
TYPICAL AVERAGE VALUES 19 kHz -35 dB
38 kHz -30 dB
NOTE: Adjustment shall start with 3 (Low pass filter) otherwise this adjustment may become difficult.

2-2 ALIGNMENT PROCEDURES OF DOLBY NOISE REDUCTION

(1) (a) Switch the set in recording condition by depressing the record and play button simultaneously (without tape).
(b) Set the Dolby N.R. switch to "off" position.
(c) Keep the gate of FET (2SK30D) in OFF condition same as the procedure of Low pass filter adjustment point 2-1 (2).
(d) Set the "Gain VR" 7 (VR 104,204) as well as the "Low VR" 8 (VR 103,203) to the maximum position.
(2) (a) Supply 5 kHz signal to PIN 1 L CH IN (PIN 4 R CH) of DIN jack from an audio generator.
(b) Connect resistors 27 k and 5.6 k Ohm in series across test point MP 5 and ground.
(c) Set recording level control of the unit to the maximum position.
(d) Set the input signal level by adjusting the attenuator of generator until the VTVM which is connected across the 5.6 k Ohm resistor indicates 3 mV.
(3) Measure the level of MP 6 with VTVM and note the resulting level as "Reference level" then turn Dolby N.R. switch to the ON position.
(4) Adjust the "Gain VR" 7 (VR 104,204) until the level of MP 6 is increased by 10 dB from the above "Reference level."
(5) Restore the gate of FET (2SK30D) in "ON" condition by disconnecting MP 1 from ground.
Then adjust "Low VR" 8 (VR 103,203) so that the output level is decreased 2 dB from the level of above (4) that means 8 dB above "Reference level."
NOTE: Alignment procedures should be followed in order of the above (1) to (5).

2-3 ALIGNMENT PROCEDURES OF PLAYBACK AND RECORDING AMPLIFIER

Remove 3 pcs of Ⓔ screws, 1 pc of Ⓕ screw and 3 pcs of Ⓖ screws fixing the cassette mechanism as shown in the exploded view. Then after dismounting the mech chassis from the bottom cabinet remove 2 pcs of Ⓗ screws fixing the switching amp PCB as shown in the exploded view.

(1) PLAYBACK
(a) Insert the Dolby level calibration tape (200 mWb/m).
(b) Connect VTVM across PIN 3 L CH out (PIN 5 R CH out) and PIN 2 (ground).
(c) Depress the play-button.
(d) Adjust 9 VR 202 L CH (VR 102 R CH) so that the output signal reaches 580 mV.
(2) RECORDING
(a) Set the recording level control (VR101 Rch, VR201 Lch) of the unit to maximum position.
(b) Connect DIN jack PIN 1 (L CH IN), PIN 4 (R CH IN) and PIN 2 (ground) to an audio generator.
(c) Adjust the signal level of the generator to 70 mV output.
(d) Connect DIN jack PIN 3 (**L CH OUT**), 5 (**R CH OUT**) and PIN 2 (ground) to **V.T.V.M.**
(e) Adjust 10 VR 101, 201 to 580 mV output.
(f) Adjust 10 VR 109, 209 so that the level meter of the unit indicates zero level. (0 VU=Standard Level)

Note: Input signal level for both L/R CH should be the same.

2-4 ADJUSTMENT OF RECORDING CURRENT AND BIAS CURRENT

(A) NORMAL TAPE
Recording Current
1 Prepare 100 Ohm resistor.
2 Connect the 100 Ohm resistor between the upper terminal of R/P head (R CH), (Lower terminal for L CH) and the red wire which is being connected to the respective terminal, by disconnecting from the terminal as shown in Fig 1.
3 Connect VTVM across the 100 Ohm. (Fig. 1)
4 Disconnect the yellow wire MP 11 from recording amplifier PCB.
5 Set the tape selector switch to the NORMAL position.
6 Keep the unit in recording condition.
7 Adjust 12 VR 105 L CH (VR 205 R CH) so that the VTVM indicates 5.2mV (52 μA). See "List 1"
Bias Current
1 Connect 100 Ohm resistor same as in the above procedure (A) 2.
2 Restore the yellow lead wire MP 11 to the original position.
3 Be sure that the tape selector switch is in NORMAL position.
4 Keep the unit in recording condition.
5 Adjust 13 VR 107 L CH (VR207 R CH) so that the VTVM indicates 30mV (300 μA). See "List 1".
6 Disconnect the 100 Ohm from the R/P head and solder the red wire as original.
Confirmation of adjustment.
1 Insert a normal tape into the deck.
2 Supply external 1 kHz signal from an audio generator to the input of the unit.
3 Record the signal at the standard level (O VU) and reproduce the recorded signal in order to confirm if the playback level indicates the Standard Level (O VU).
4 If the playback level does not indicate the Standard Level than the above adjustments should be repeated from the beginning until the level is indicated correctly.

(B) SPECIAL TAPE
1 Follow the same alignment procedures as that of the NORMAL TAPE by setting the tape selector switch to SPECIAL Position.
2 Adjust 14 VR 106 (R CH), VR 206 (L CH) for recording current (6.7mV 67 μA) MP 15 VR 108 (L CH), VR 208 (R CH) for bias current (43mV 430 μA) as per "List 1".
3 Confirmation of adjustments following the same procedures as at the NORMAL TAPE by using a SPECIAL TAPE.

List 1 ADJUSTMENT TABLE

	NO.	NORMAL TAPE L	NORMAL TAPE R	NO.	SPECIAL TAPE L	SPECIAL TAPE R
REC CURR	12	VR105	VR205	14	VR106	VR206
BIAS CURR	13	VR107	VR207	15	VR108	VR208

TARGET VALUE OF EACH ADJUSTMENT
1. Recording current
Normal tape 52 μA ±16 μA
Special tape 67 μA ±20 μA
2. Bias Current
Normal tape 300 μA ±90 μA
Special Tape 430 μA ±130 μA
*The tape to be used for this adjustment :
Normal tape BASF TP-18 C60
Special tape BASF SM C60

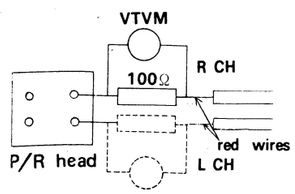
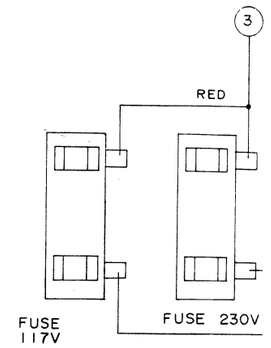
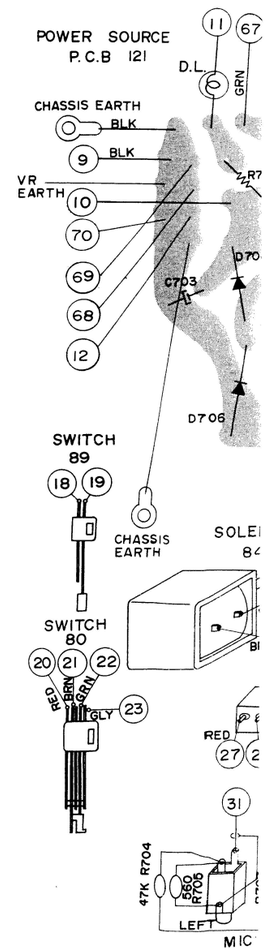


Fig 1

2-5 ADJUSTMENT OF

(1) To be followed the sam
(2) Same adjustment Proce
(3) Note the resulting of th
(4) Adjust the 16 LA301 above level of 3.



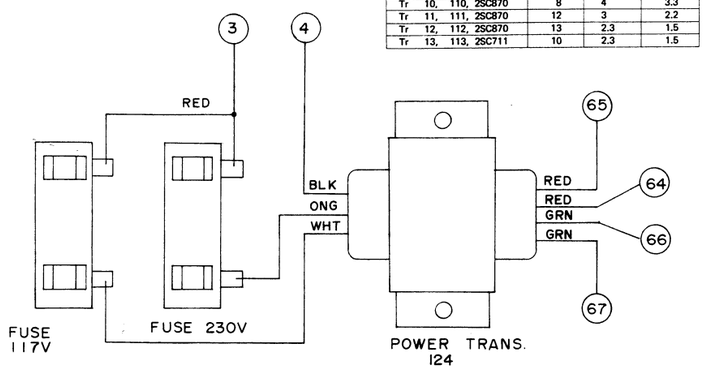


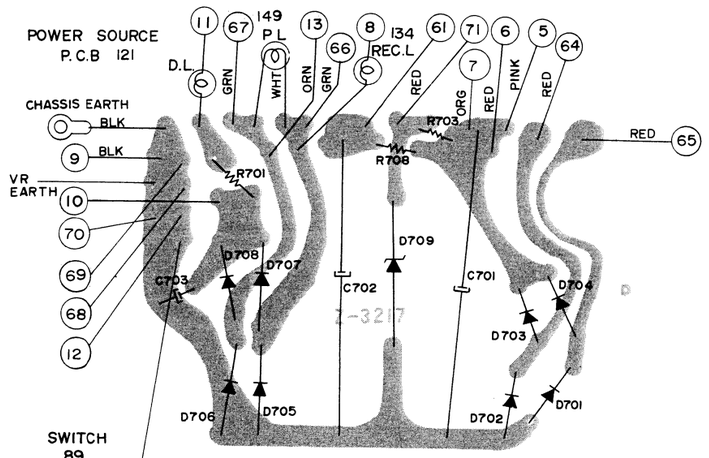
2-5 ADJUSTMENT OF RECORDING EQUALIZER

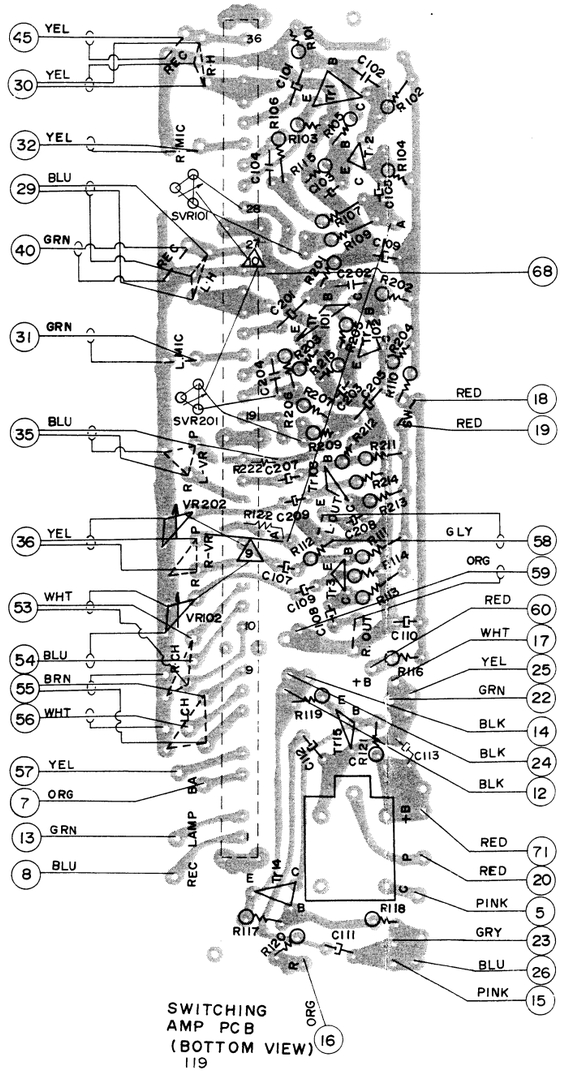
(1) To be followed the same steps of "1 to 6" as that of the Recording Current Adjustment.
(2) Same adjustment Procedures of R/L CH.
(3) Note the resulting of the VTVM then switch signal frequency of the generator from 1 kHz to 10 kHz.
(4) Adjust the /16\ LA3010 so that the indicating level of VTVM is decreased until 11 - 12 dB basing on the above level of 3.

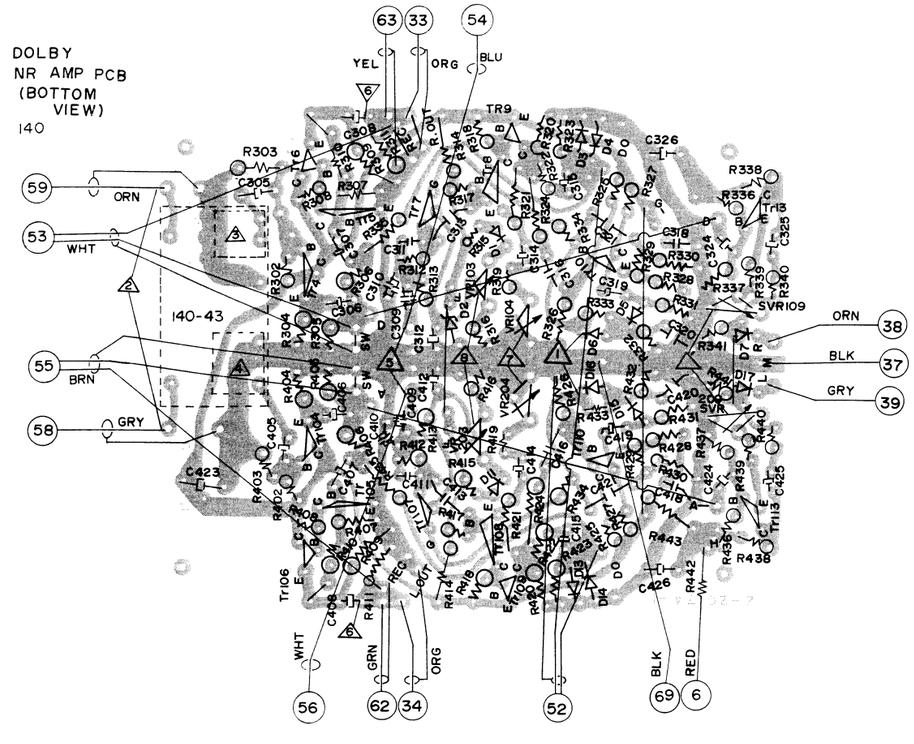
VOLTAGE CHART

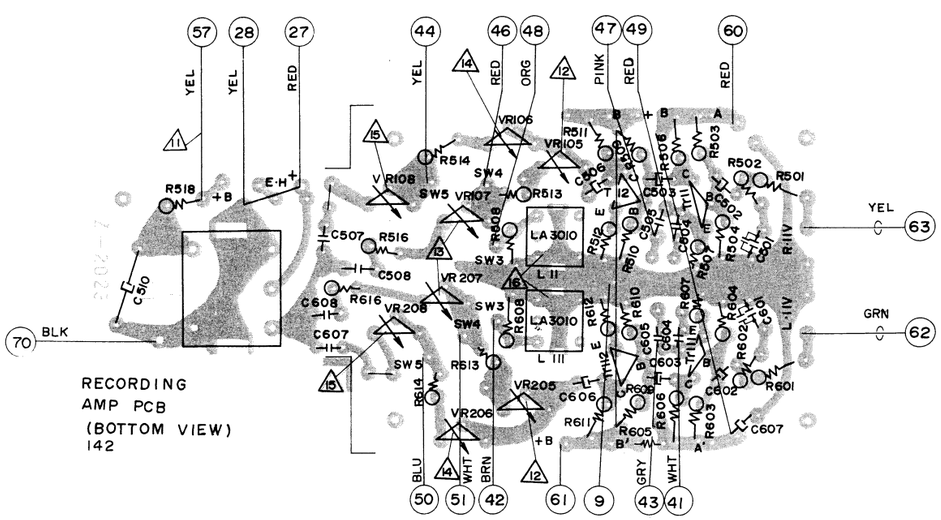
	Vc	Vb	Ve
Tr 1, 101, 2SC871	4	0.5	
Tr 2 102, 2SC870	13	4	3.3
Tr 3 103, 2SC870	13	3.3	2.6
Tr 4, 104, 2SC870	15	5	4.5
Tr 5, 105, 2SC870	5.5	0.65	
Tr 6, 106, 2SC870	15	5.5	5
Tr 8, 108, 2SC870	14	6	5.5
Tr 9, 109, 2SA695	5	14	15
Tr 10, 110, 2SC870	8	4	3.3
Tr 11, 111, 2SC870	12	3	2.2
Tr 12, 112, 2SC870	13	2.3	1.5
Tr 13, 113, 2SC711	10	2.3	1.5

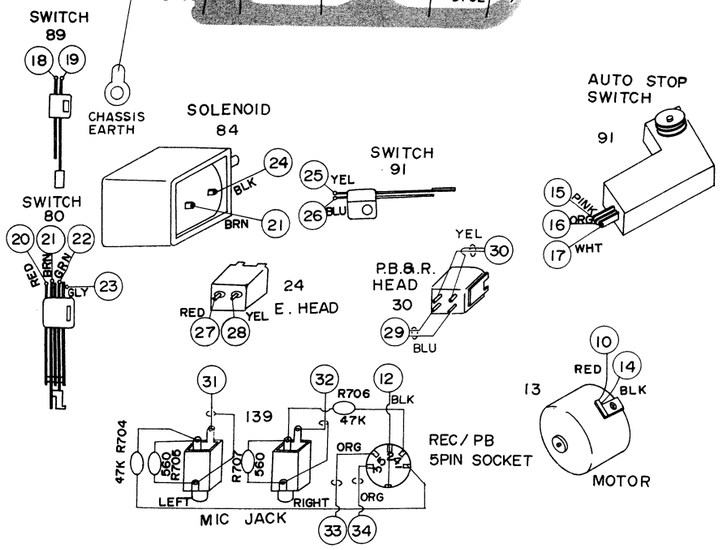


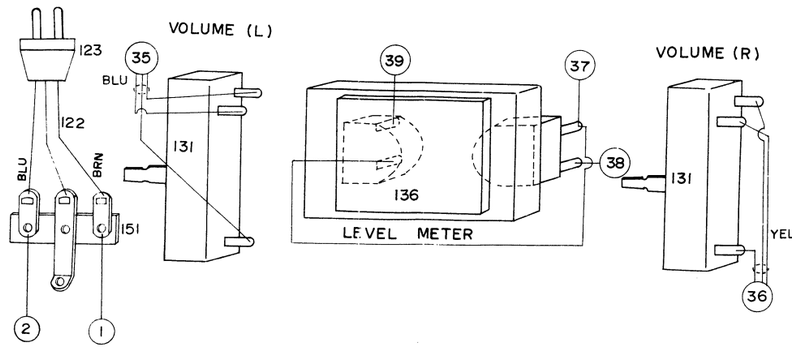


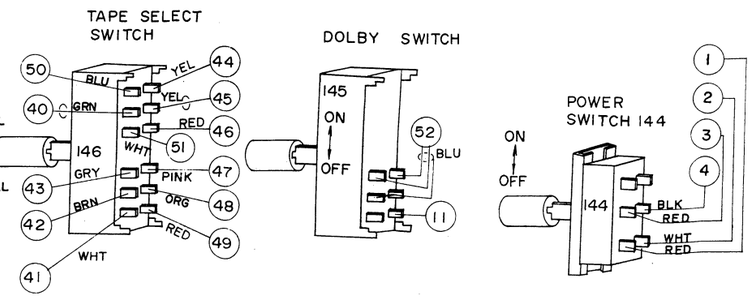


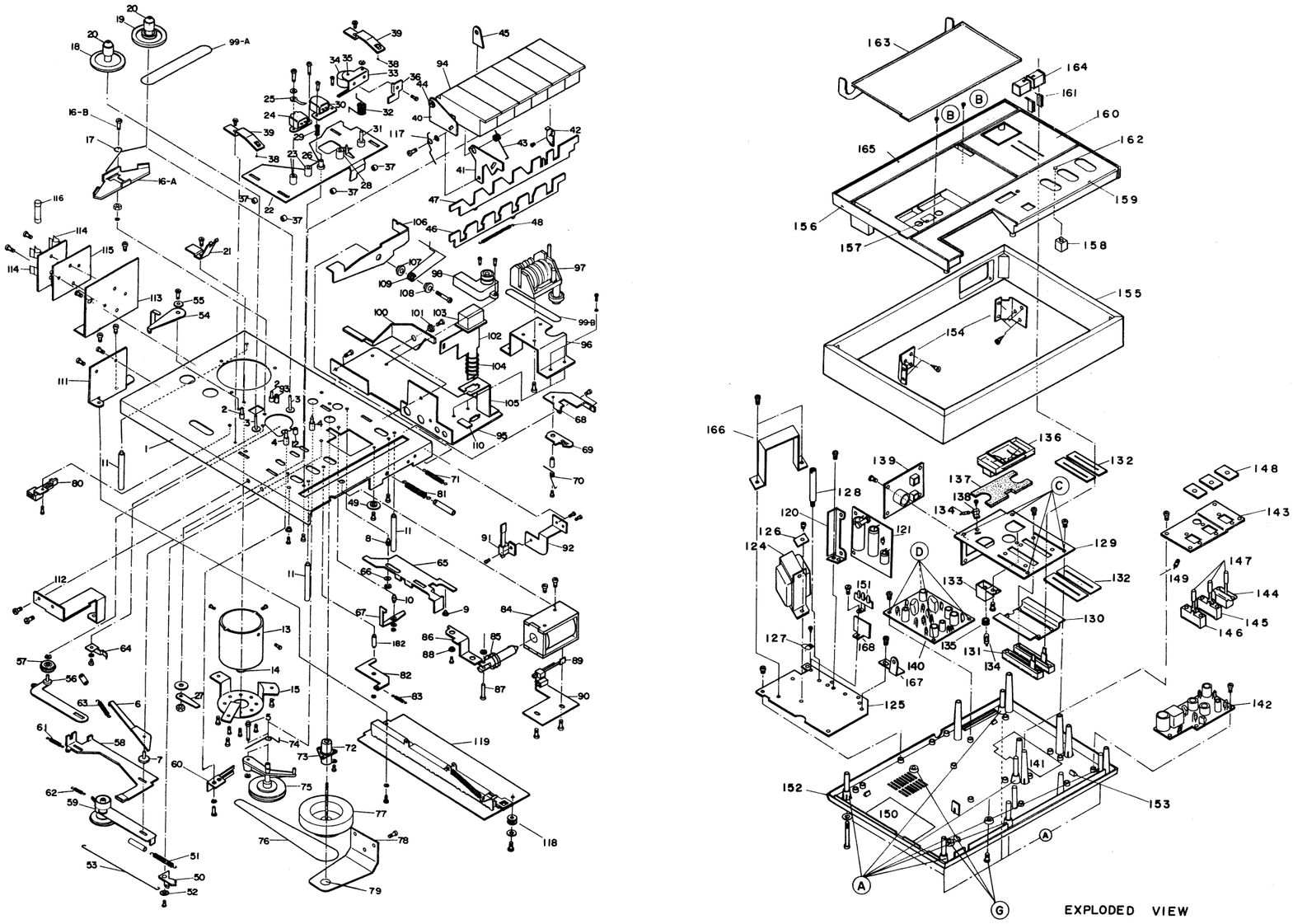








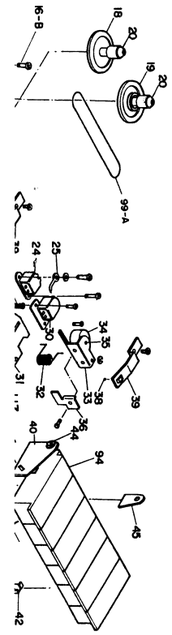




CD-100 Parts List

Mfd No.	Parts No.	Description	Q'ty	Mfd No.	Parts No.	Description	Q'ty
	1	Mech chassis	1			Idler arm ass'y-f.f. rew	1
	2	Shaft-pack holder	2		60	Idler arm guide-f.f.	1
	3	Shaft-turn table	2		61	Spring-rewind idler arm	1
	4	Pin guide	2		62	Spring-brake arm	1
	5	Shaft-take up arm	1		63	Spring-f.f. arm	1
	6	Idler arm guide lever-f.f.	1		64	Spring-idler arm guide	1
	7	Shaft-idler arm guide	1		65	Pause arm B	1
	8	Guide shaft A-pause arm A	1		66	Spacer	1
	9	Guide shaft B-pause arm A	1		67	Pause arm C	1
	10	Guide shaft C-pause arm B	1		68	Pause rocker arm A (holder)	1
	11	Sleeve shaft-mech to bottom cabinet	3		69	Pause rocker arm B	1
	12	Sleeve shaft-mech to front	1		70	Spring-rocker arm	1
Pu-2059	13	Motor, MH-5R2C	1		71	Spring-pause arm A	1
	14	Motor pulley	1		72	Flywheel oil less metal	1
	15	Bracket-motor	1		73	Bracket-oil less metal	1
	16-A	Brake balance arm	1		74	Spring-idler take up	1
	16-B	Shaft-brake arm	1		75	Take up clutch ass'y	1
	17	Spring-brake balance arm	1		76	Main driving belt	1
	18	Turn table ass'y-Left	1		77	Flywheel & capstan ass'y	1
	19	Turn table ass'y-Right	1		78	Flywheel holder	1
	20	Cap-turn table	2		79	Nylon washer-flywheel	1
	21	Pack holder spring	1		80	Switch-Mech.	1
	22	Head panel	1		81	Spring-head panel	1
	23	Head holder shaft A-erase	2		82	Rew arm	1
Pu-2063	24	Erase head, AE-841	1		83	Spring-rew arm	1
Pu-2069	25	Cord holder - hc-d	1		84	Plunger ass'y	1
	26	Head holder shaft B-playback	1		85	Spring-plunger	2
	27	Holder plate-rewind arm	1		86	Release arm-button rocker arm	1
	28	Head holder shaft C-playback	1		87	Joint shaft	1
	29	Spring-head azimuth	1		88	Pivot-release arm	1
Pu-2064	30	Rec./Play head, R-747	1	Pu-3024	89	Switch-Amp.	1
	31	Shaft-pinch roller arm	1	N-2063A	90	Switch arm	1
	32	Spring-pinch roller arm	1		91	Switch-pause	1
	33	Pinch roller arm	1		92	Pause switch arm	1
	34	Pinch roller	1	S-2029	93	Stopper-front panel	1
	35	Shaft-pinch roller	1	M-2014A	94	Key button	6
	36	Pause arm A	1	M-2053A	95	Sub chassis	1
	37	Head panel roller	4	N-2052	96	Bracket-tape counter	1
	38	Steel ball	2		97	Tape counter	2
	39	Head panel spring	2		98	Switch-auto stop	1
	40	Frame-push button	1		99	Belt-auto stop & tape counter	1
	41	Lever-push button	6	N-2060	100	Eject arm A	1
N-2089B	42	Sab lever-leaf switch	1	S-1022A	101	Pivot-eject arm A	1
	43	Lever spring-push button	6	N-2059C	102	Eject arm B	1
	44	Shaft-push button	1	M-1035A	103	Knob-Cap	1
	45	Holder plate-push button shaft	1	B-2013	104	Spring-eject arm B	1
	46	Push button arm A	1	N-2057	105	Holder-eject arm B	1
	47	Push button arm B	1	N-2058B	106	Stopper arm-eject arm B	1
	48	Spring-rocker arm	1	S-1022A	107	Pivot-stopper arm	1
	49	Rocker guide-push button	1	S-2001	108	Sleeve-spring	1
	50	Safety lever A-record	1	B-2012C	109	Spring-stopper arm	1
	51	Spring-safety lever A	1	G-2005	110	Rubber-stopper arm	1
	52	Pivot-safety lever A	1	N-2065A	111	Holder-mech to bottom cabinet	1
	53	Joint shaft-safety lever	1	N-2066A	112	Holder-switch circuit board	1
	54	Safety lever B-record	1	N-2087A	113	Holder A-fuse	1
	55	Pivot-safety lever B	1	Pu-2112	114	Fuse holder ass'y	1
	56	Idler arm ass'y-rewind	1	Z-2026B	115	Insulator A-fuse holder	1
	57	Idler-rewind	1	Pu-2067	116	Fuse, 0.5A	2
	58	Brake arm	1	B-2019	117	Rec rock bar	1
G11	118	Bushin-Insulater	1				
	119	Switching amp ass'y	1				
Z-2022	-29	Switching P.C.B.	1				
	-30	2SC871 E or F	2	Tr1,101			
	-31	2SC870 E or F	4	Tr2,3,102,103			
	-32	2SC945 Q	2	Tr14,15			
Pu-2021	-33	Switch- L1122B5	1				
Pu-2066	-34	Relay-RM-119	1				
Pu-2058	-35	Slide Variable resistor, 10K A	2				
	-36	Semi- Variable 50K	2	VR101,102			
	-37	" 500 ohm	2	VR201,202			
N-3239	120	Holder - Power P.C.B.	1				
	121	Power P.C.B. ass'y	1				
Z-3217	-6	Power P.C.B.	1				
	-7	Rectifier, SR-1K-2	8	D1,2,3,4,5,6,7,8			
	-8	Zener, BZ-140	1	D9			
	122	Power cord	1				
	123	Plug-power supply cord	1				

Mfd No.	Parts No.	Description	Q'ty	
Pu-2060	124	Power transformer	1	
N-2040C	125	Holder-power transformer	1	
N-59	126	Washer-power transformer	2	
Pu-2068	127	Holder-supply cord	1	
S-2024	128	Sleeve-front panel	1	
N-2033G	129	Holder-volume & meter	1	
N-2056	130	Holder-volume	1	
Pu-2058	131	Volume-10KohmA	2	
Z-1021	132	Cover-volume	4	
N-3188	133	Holder-recording lamp	1	
Pu-2108	134	Indicator lamp-12V 85 mA	2	
G-3001	135	Bushing-recording lamp	1	
Pu-2057	136	VU meter-KL-238A-64	1	
Z-2036	137	Cushion-VU meter	1	
N-2012A	138	Holder-pilot lamp	1	
Pu-2056A	139	Jack ass'y	1	
	140	Dolby amp ass'y	1	
Z-2017A	-42	Dolby P.C.B.	1	
Pu-2106	-43	Low pass filter-Dolby	1	
	-44	FM-1	6	D5,7,15,17
	-45	M-8513	6	D3,4,6,13,14, 16
	-46	Z137	1	D2
	-47	28C870 E or F	10	Tr4,5,6,8,10 104,105,106, 108,110
	-48	2SK30 D	2	Tr7,107
	-49	2SA695 D	2	Tr9,109
	-50	2S711 E or F	2	Tr13,113
	-51	Semi- Variable 5 K ohm	2	VR103,203
	-52	" 500 ohm	2	VR104,204
	-53	" 300 ohm	2	VR109,209
Z-2030A	141	Insulator-dolby circuit	1	
	142	Recording circuit ass'y	1	
Z-2023	-24	Recording P.C.B.	1	
	-25	2SC870 E or F	4	
	-26	Semi- Variable 300K ohm	2	VR107,207
	-27	" 100K ohm	2	VR108,208
	-28	" 50K ohm	2	VR105,205
	-29	" 20K ohm	2	VR106,206
Pu-3052B	-30	OSC block	1	
LA-3010	-31	Picking coil CAN-2125GO	2	
N-2055A	143	Holder-switch	1	
Pu-2062	144	Switch-AC power	1	
Pu-3152	145	Switch-Dolby on-off	1	
Pu-3153	146	Switch-tape selector	1	
M-3050A	147	Knob-switch	3	
Z-3104 A	148	Cover-switch	3	
Pu-2109	149	Lamp 12V 100mA	1	
Z-2029A	150	Insulator plate	1	
Pu-2110	151	1-1-1P terminal	1	
M-2016S	152	Bottom cabinet	1	
G-2002	153	Rubber-foot	4	
N-2081B	154	Holder C-Cabinet	2	
K-2032	155	Cabinet	1	
M-2015K	156	Front cover	1	
Z-2016	157	Pack indicator plate	1	
G-3011	158	Lamp holder-rubber	1	
P-2034B	159	Front plate	1	
P-2035A	160	Control knob	1	
N-2080A	161	Spacer	2	
M-93	162	Dolby lamp cover	1	
M-2012D	163	Smoked plate	1	
	164	Knob-recording level	2	
P-2036A	165	Model plate,Teleton	1	
P-2047A		" ,Matsi	1	
N-2092	166	Holder-Power trans.	1	
N-2093	167	Powe P.C.B.	1	
Z-2041	168	Insulater-AC	1	
	169	Styrofoame	1	
	170	Display carton	1	
	171	Instruction booklet	1	
Z-3101	172	Serial No. label	1	
P-2037B	173	Model No. plate Teleton	1	
P-2048	174	Matsi	1	
P-2043	175	Caution label-fuse	1	
P-2046	176	License label	1	
Pu-2065	177	Cassette mecha. CT-517PC	1	



SWITCHING CIRCUIT

DOLBY CIRCUIT

P & RH

L CH

MIC

DIN PIN 1

P & RH

R CH

MIC

DIN PIN 4

LOW PASS FILTER

LOW PASS FILTER

DIN PIN 3

DIN PIN 5

RECORDING CIRCUIT

OSC. BLOCK

EH

POWER SUPPLY CIRCUIT

240V

AC SUPPLY

117V

POWER SW

AUTO STOP SW

PILOT LAMP

DIN JACK

REC. LAMP

TAPE SELECT SW

PLAY SW

PAUSE SW

DOLBY LAMP

TRANSISTORIZED GOVERNOR

TR1, 101 2SC871(E or F)
TR2, 102 2SC870(E or F)
TR3, 103
TR4, 104
TR5, 105
TR6, 106
TR7, 107 2SK30D
TR8, 108 2SC870(E or F)
TR9, 109 2SA695D
TR10, 110 2SC870(E or F)
TR11, 111
TR12, 112
TR13, 113 2SC711
TR14, 15. 2SC945(Q)

CD-100